

Making REDD work for the poor: The socio-economic implications of mechanisms for reducing emissions from deforestation and degradation

IUCN on behalf of the Poverty and Environment Partnership

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Executive Summary

Reducing Emissions from Deforestation and Degradation (REDD) is a crucial building block for a post-2012 climate regime. Furthermore, REDD presents a tremendous opportunity to jointly address climate change and rural poverty, while sustaining ecosystem services and conserving biodiversity. However, in order to maximize the contribution of REDD to sustainable development, more attention must be paid to the interests of all stakeholders, especially rural people who live in and depend upon forest ecosystems. Forests support the livelihoods of several hundred million of the poorest people around the world. New initiatives to address climate change by conserving forests and other ecosystems must be based on a solid understanding of their social impacts, as well as the potential environmental benefits.

Protecting ecosystems for local livelihoods and global benefits

Over the past century, humankind has altered and degraded its natural environment more than at any other time in history. This ecological crisis is a direct threat to the survival of the world's biological diversity and is undermining the ecosystem services upon which all societies ultimately depend. Human economic activity has reached such a scale that it is disturbing the global climate system, leaving us all increasingly vulnerable to extreme weather events, desertification, sea-level rise and other adverse effects. Meanwhile poverty and insecurity continue to afflict billions of people around the world, despite concerted and sustained efforts to foster economic and social development.

Within this context, the prospects of jointly addressing concerns about climate change, biodiversity loss and poverty by Reducing Emissions from Deforestation and Degradation (REDD) have attracted growing attention from the international environment and development communities. Deforestation and the degradation of terrestrial ecosystems are believed to account for up to 25% of anthropogenic greenhouse gas emissions. In addition to mitigating climate change, REDD appears to offer a range of other benefits, including the conservation of biodiversity and ecosystem services, as well as a new and sustainable source of income for rural communities, as the stewards of biological carbon stocks.

Rural communities and REDD

Incentives for developing countries to conserve carbon in natural biomass are currently limited to a narrow range of forestry activities, not including the avoidance of deforestation or land degradation. However, as part of negotiations of a post-2012 global climate change regime, there is increasing discussion of the possibility of creating new incentives for REDD. As the debate evolves, concerns are growing that insufficient attention is being paid to the interests of the rural communities who live in and depend upon the carbon-rich ecosystems that REDD initiatives would aim to conserve.

Forests support the livelihoods of several hundred million people, including some of the poorest communities in the developing world. REDD could offer significant new resources for sustainable forest management and conservation. To be effective, however, REDD initiatives must be driven not only by their potential climate and other environmental benefits but also by consideration of how they will affect rural communities.

The linkages between deforestation, development and poverty are complex and context-specific. Weak governance and institutional capacity in some countries, as well as inadequate mechanisms

for effective participation of local communities in land use decisions, could seriously compromise the delivery of both local and global benefits and the long-term sustainability of REDD investments.

A pro-poor approach to REDD

The success of REDD will ultimately depend on how well it contributes to the development needs of forest-dependent communities. Hard-won lessons from years of experience in the agriculture and forest sectors, in nature conservation and the global carbon market, can all help guide the design of more equitable and effective REDD mechanisms. The biggest challenges may be governance issues, such as weak rural land tenure regimes, limited access by vulnerable groups to investment finance, markets and information, and capture of benefits by local or national ‘elites’.

Community-based and participatory approaches can help overcome such hurdles, although their high initial costs can make them difficult in practice. In the long-run, however, efforts to enlist community support for REDD should reduce costs and risks and increase total benefits. Such an approach can also enhance coherence between REDD and other environmental and development efforts. Some further principles and practical actions for effective, pro-poor REDD are outlined below.

Capacity building and incentives at the national level:

- Ensure equitable cost and benefit-sharing with local communities and design financial flows from national to local levels accordingly
- Facilitate the active participation of vulnerable stakeholders
- Recognize and strengthen local community and indigenous rights to access, sustainably use and trade in forest goods and ecosystem services
- Consider the full range of forest ecosystem services, alongside carbon sequestration
- Strengthen incentives for integrated conservation and development actions, building on pro-poor forest governance reform processes, e.g. Forest Law Enforcement and Governance actions
- Reduce ‘perverse’ subsidies and other policies that encourage deforestation and land-use activities leading to greenhouse gas emissions
- Ensure that REDD does not reduce access of rural communities to essential infrastructure and services
- Mainstream REDD in wider land-use plans and poverty reduction strategies
- Strengthen the capacity of government and civil society organizations to plan, implement and monitor pro-poor REDD
- Explore ways to reduce transaction costs through partnerships between public agencies, small-scale land users and other stakeholders
- Undertake regular social impact assessments of REDD initiatives

Information and policy at the international level:

- Raise awareness of the important linkages between REDD and poverty reduction, targeting development organizations, carbon market participants and host-country governments
- Seek consensus on the principles, criteria and indicators for pro-poor REDD, including for example voluntary standards for pro-poor REDD projects
- Develop tools to anticipate, monitor and address the social impacts of REDD initiatives, drawing on previous efforts to address the social impacts of protected areas, carbon offset projects, forest and agricultural policy, rural infrastructure, etc.

- Test alternative financial mechanisms to support pro-poor REDD, e.g. matching private finance with public funding or linking REDD to microfinance schemes
- Promote REDD initiatives that exploit the synergy between mitigation and adaptation to climate change and other environmental objectives, ecosystem services, biodiversity, water, etc.

Introduction

1.1. *Climate and other values of tropical forests*

Forests provide many important economic benefits, beyond their traditional role in supplying timber and non-timber products and as land reserves for agricultural expansion. Evidence is growing that forests are an essential component of the global climate system. Their role in maintaining both carbon and water cycles make them critical components of human well-being at all geographic scales. A wide variety of indigenous and forest-dwelling communities call tropical forests their home, as do a significant share of our planet's terrestrial species of plants and animals. Yet, these havens of diversity are also among the most threatened ecosystems in the world. Tropical forests in particular are expected to be lost at a rate of 5% per decade over the next 30 to 50 years (Chomitz *et al.*, 2006).

Forest ecosystems contain twice as much carbon as the total amount contained in the atmosphere. Tropical forests, in particular, hold a significant share of the world's terrestrial carbon, with a range of 120 to 400 tons per hectare (Lawrence, 2007), or up to 3000-6000 tons per hectare for certain carbon-rich peat forests (Hooijer *et al.*, 2006).

When forests are cleared, a significant portion of the carbon that they have accumulated both in their above-ground (branches and leaves) and below-ground (soils) biomass is released back into the atmosphere. Similar net carbon emissions result from soil disturbance due to agriculture. Human-driven deforestation and land degradation has thus contributed significantly to the recent rise in greenhouse gas emissions (GHGs) that is driving global climate change. It is estimated that deforestation and other forms of land degradation – mainly in the tropics – may account for up to one quarter of all anthropogenic greenhouse gas emissions (Santilli *et al.*, 2005; Stern, 2006; UNFCCC, 2006; IPCC, 2007).

Despite the importance of forests for climate mitigation, biodiversity conservation and human development, recent efforts to reduce the loss and degradation of tropical forests have had limited success. However, with climate change rising steadily to the forefront of the global consciousness, many people are hoping for renewed support for the conservation of tropical forests.

1.2. *Addressing deforestation in climate policy*

Economic incentives for reforestation and afforestation¹ have been established as part of the existing international climate change regime (i.e. Clean Development Mechanism of the Kyoto Protocol). However, no such incentives currently exist for avoiding deforestation in developing countries. The fact that deforestation is driven by diverse, layered and linked factors – such as timber extraction, agricultural expansion, urban sprawl and the opening of new roads – makes it a particularly difficult issue to address (Geist and Lambin, 2001). The overall complexity of including 'avoided deforestation' as a climate mitigation option continues to fuel a lively debate among forest and climate stakeholders.

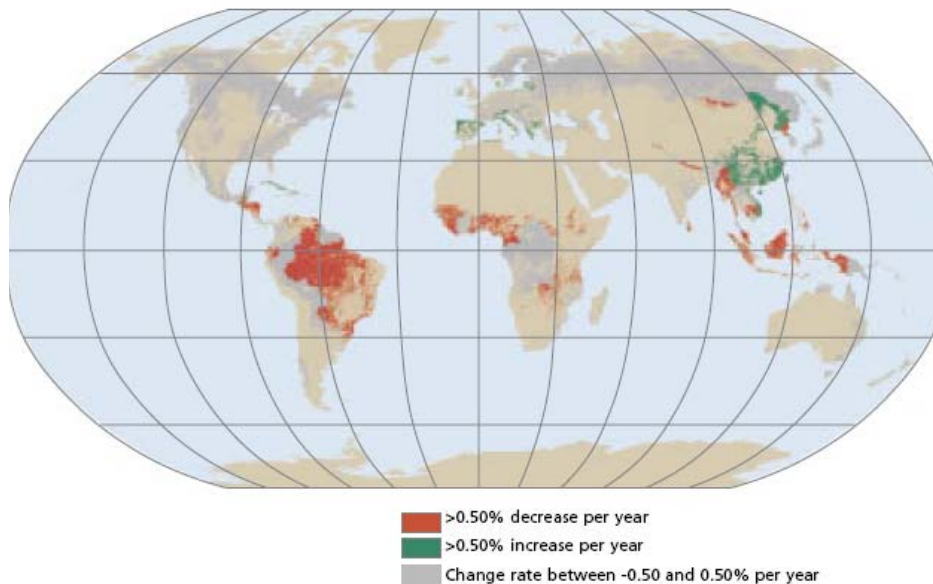
As the two countries with the highest amounts of forest loss (FAO, 2005), Indonesia and Brazil hold particular importance in the REDD debate. The potential contribution to emissions mitigation that could be achieved by avoiding deforestation and land degradation in these two countries alone is estimated to be roughly equal to the total amount of GHGs emissions anticipated

¹ Reforestation is defined under the Clean Development Mechanism of the Kyoto Protocol, for the purpose of determining which activities are eligible for carbon credits, as the direct human-induced conversion of non-forested land to forest land in areas deforested prior to 31 December 1989, while afforestation refers to creation of forest in areas not forested over the previous 50 years (FCCC/KP/CMP/2005/8/Add.3).

from developed country (UNFCCC Annex I) GHG reductions under the first commitment period of the Kyoto Protocol (Santilli *et al.*, 2005). Forest loss is also a significant problem in Africa, where the forested area of the Congo Basin is increasingly threatened by alternative land uses (BTC-CTB, 2007).

To be truly effective in limiting the emission of GHGs, deforestation must be addressed at a landscape scale – perhaps even globally (see Figure 1). This is because conservation actions implemented in one region may simply result in the displacement (‘leakage’) of deforestation pressures to another region, especially where land use change is driven by national or global market demand for forest and agricultural commodities, which remains largely unaffected by conservation efforts. Other major debates about REDD relate to the establishment of meaningful baseline trends in land use, against which ‘additional’ conservation results can be reliably measured and rewarded, as well as the permanence of conservation in the face of fire, pests and other risks to standing forests. These and other technical and political challenges have so far stood in the way of global consensus on how to reduce emissions from deforestation in developing countries, as discussed further below.

Figure 1 : Net changes in Forest Cover, 2000-2005: (FAO, 2005)



Current discussions under the United Nations Framework Convention on Climate Change (UNFCCC) are continuously reshaping the debate on how to integrate terrestrial biomass in climate mitigation strategies. Various proposals have been put forward by a range of governments and non-government organizations. Many people insist on the need to consider both deforestation *and* the degradation of terrestrial ecosystems as major sources of greenhouse gas (GHG) emissions. The acronym REDD is commonly used² to reflect this ‘deforestation and degradation’ duality, and will be used throughout this report³.

² For example, the World Bank uses the acronym REDD as an abbreviation of “Reducing Emissions from Deforestation and forest Degradation”.

³ Alternatively, researchers from the Joannum Research Insitute integrate non-forest ecosystems by considering a ‘DDD’ instrument, which includes Deforestation (from forest to non-forest), Degradation (from forest types with higher carbon stocks to non-forest status with lower carbon stocks) and Devegetation (from non-forest status with higher carbon stocks to non-forest status with lower carbon stocks (Schlamadinger *et al.*, 2007).

1.3. REDD and sustainable development

Recent debates about REDD have largely focused on technical issues, such as leakage, additionality and permanence, noted above. There has been much less attention to the potential impact of REDD investments on the development prospects of people living in forested countries and regions. Most official statements on REDD contain little reference to social concerns, although some non-governmental organizations appear to be more sensitive to the issue (see Annex 1). Nevertheless, given that more than 1 billion people living in poverty depend on forests for a significant share of their livelihoods (McQueen and Vermeulen, 2006), it seems clear that the needs and perspectives of the rural poor must also be reflected in future decisions about REDD.

Beyond purely ethical justifications for a ‘pro-poor’ approach to REDD, it has also been found in many instances that careful attention to distributional impacts and the encouragement of local-level stewardship of natural resources is essential to achieving sustainable development objectives (Wells and Brandon, 1992; Fisher *et al.*, 2005). Hence, the successful implementation of REDD will depend in large part on its ability to deliver benefits at both local and global levels.

The loss of biodiversity and the deregulation of the climate system are enormous challenges, which must be addressed at an international scale. However, the global scale of these problems should not prevent us from losing sight of the local impacts of environmental degradation, nor of the significant contribution that rural communities can make to addressing them.

This paper focuses on the social dimensions of the REDD debate and aims to explore how REDD can work for the poor as well as the global climate. Section II provides an introduction to REDD, including alternative definitions and lessons learned from the limited experience to-date. Section III considers the broader linkages between poverty, inequality and forest management, with a view to understanding how rural communities affect and are affected by deforestation and forest degradation. Section IV builds on these considerations to assess how rural livelihoods are addressed in REDD-related schemes and policies. These findings serve as the basis for Section V, which offers a perspective on how to implement pro-poor REDD. A brief discussion on the potential of pro-poor approaches to REDD is provided in the concluding section.

2. Reducing Emissions from Deforestation and Degradation (REDD)

2.1. A 'REDD' hot topic

Climate change has reached unprecedented prominence in international affairs. The recently convened Heads of State meeting, hosted by the Secretary General of the United Nations, is one recent example among many⁴. The impacts of deforestation on climate change and likewise the potential contribution of forest conservation to climate mitigation have been high on the international agenda, alongside efforts to promote energy efficiency, low-carbon technology and other solutions.

In simple terms, REDD refers to any conservation or sustainable land-use initiative that effectively mitigates a real deforestation/degradation threat in a given area. Attention has focused on REDD opportunities in the Amazon Basin, the Congo Basin, mainland and archipelagic Southeast Asia, although REDD is potentially relevant in every region where deforestation and forest degradation occur. This highlights an important characteristic of REDD, namely its potential to secure wider participation of developing countries in climate mitigation efforts (Skutsch *et al.*, 2006).

With negotiations set to begin on the architecture of an international climate change regime beyond 2012, REDD has become a key focus of discussion. Several institutions are actively seeking to develop workable approaches to increase finance for tropical forest conservation. For example, the World Bank is proposing a Forest Carbon Partnership Facility (FCPF) and Global Forest Partnership (GFP), which will be launched during the 13th Conference of the Parties to United Nations Framework Convention on Climate Change (UNFCCC). The Australian government is financing similar activities in the Asia-Pacific region, through its Global Initiative on Forest and Climate, with some of this finance channeled through the FCPF.

In advance of COP13, the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA) has prepared a draft decision on REDD⁵. At the same time, numerous official submissions by governments, position statements from NGOs and reports from the scientific community have been put forward with respect to REDD. Most of these documents focus on methodological challenges, including the precise definition and scope of REDD and what it might achieve as a mitigation mechanism. Large differences remain to be resolved. Funding is a key focus of debate, in particular the role of carbon trading and other market-based mechanisms as sources of finance for REDD. Consensus is emerging around certain key features of REDD, as listed in Box 1.

⁴ See: <http://www.un.org/climatechange/2007highlevel/>. Other recent high-level meetings on climate change include ...

⁵ See: http://unfccc.int/parties_and_observers/ngo/items/3689.php

Box 1 : Converging views on REDD

- **Support from developed countries** is needed to help developing countries prepare for REDD, including technology transfer and capacity building.
- **A combination of national and sub-national (project-based) action** will be required to implement REDD successfully.
- **Proven approaches to sustainable forest management** may be used to implement REDD in productive landscapes.
- **Methodological issues are surmountable**, notwithstanding continuing disagreement about baseline deforestation rates and other issues.

2.2. *What can be expected from REDD?*

2.2.1. Key features of REDD

At present, REDD is more of a theoretical concept than established practice. A range of political and technical issues continue to impede the development of REDD as an effective climate mitigation option (see Box 2). Nevertheless, recent experience of conservation projects targeting the voluntary market for carbon offsets provides an initial appreciation of the potential scope and limitations of REDD. Commonly cited examples include the Noel Kempff Climate Action Project in Bolivia and the Makira Forest Project in Madagascar (Peterson *et al.*, 2007). Similar projects are starting to emerge elsewhere⁶.

A common feature of these projects is the claim that real climate mitigation benefits can be achieved by conserving forests in the face of logging, agriculture and other pressures. Once verified by a third party, the resulting carbon credits are sold to offset buyers through the budding voluntary carbon market.

However, in the absence of national inventories of GHG emissions from land use change and consistent policy approaches, such isolated, project-based initiatives may be accused of merely shifting the threat of deforestation from one place to another area. Such leakage has been documented in the case of the Noel Kempff project and remains a risk for other recent carbon conservation initiatives. A major task for any eventual REDD regime is to ensure that site-specific or project-based actions are not compromised by 'leakage'.

A related issue is how to establish a meaningful reference point or 'baseline' for deforestation, at a national or regional level, in order to assess the effectiveness of REDD and their eligibility for any eventual financial incentives. The problem here is that the pace and trajectory of deforestation varies across countries and at different stages of economic development, implying that historical rates of land use change may not provide a reliable basis from which to predict future deforestation pressures. Some commentators suggest that a global scenario against which all participating countries will be measured would be more effective in limiting leakage (Skutsch *et al.*, 2006; Mollicone *et al.* 2007).

⁶ The Climate, Community and Biodiversity Alliance (CCBA) is reviewing a potential REDD project in Aceh, Indonesia. See: <http://www.climate-standards.org/projects/index.html>

Box 2 : Key political and technical hurdles to REDD:(Mitchell *et al.*, 2007)

- Political:
 - Moral hazard – concern that REDD will allow developed countries to ‘buy their way out’ of emission reductions
 - Differing national contexts and priorities
 - Uncertain integration of REDD in carbon markets
- Technical:
 - Leakage – the displacement of deforestation pressures
 - Lack of permanence of conservation measures (due to risks of fires, pest outbreaks, etc.)
 - Additionality – the difficulty in proving that a measure has effectively mitigated the deforestation threat or that conservation would not have occurred anyway
 - How to establish meaningful baseline scenarios, given uncertain deforestation trajectories in different countries

Another outstanding question is whether to include forest degradation in definitions of REDD and any eventual incentive mechanism. While there is little doubt that significant GHG emissions can arise from fires, farming, logging and other land uses that do not involve the complete removal of forest cover, some argue that a precise definition and measurement of *degradation* is extremely complicated, if not impossible. Nevertheless, the Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance on the topic is widely accepted as providing an agreed set of definitions and reporting guidance (Penman *et al.* 2003)⁷.

For the purpose of clarity, this paper considers REDD mainly as a mechanism to conserve forests – including both avoided deforestation and efforts to reduce forest degradation. However, it should be acknowledged that similar mechanisms could have wide application to other ecosystems, such as grasslands, wetlands or agricultural landscapes.

Because REDD has yet to ‘take off’ at a meaningful scale, it is difficult to foresee how it might evolve from scattered project-based initiatives to an international regime. Nevertheless, based on the views and proposals put forward to the UNFCCC, the outlines of a future REDD regime may be envisaged as follows:

- **REDD will target both pristine and managed forests:** A focus on both deforestation and degradation would mean that REDD activities could include not only forest protection but also sustainable forest management (SFM). Incentives for REDD may thus support strict nature reserves as well as providing additional income for multiple use forestry (including timber extraction).
- **Capacity building in developing countries will be a priority.** In order to engage in REDD, countries will need to have the necessary physical and institutional structure in place. Reliable forest monitoring systems are a key pre-requisite, along with clarity on the rights and responsibilities of different parties for achieving mitigation through REDD.
- **REDD will involve local projects as well as national programs:** Most submissions to the UNFCCC acknowledge the need to combine national and sub-national action to achieve REDD. Thus, national REDD programs may include a range of actions involving many different sectors and stakeholders, all of them tending to strengthen local-level incentives for

⁷ The guidelines are available on the IPCC website: <http://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf.htm>

conserving forests and reducing land degradation (see Box 3). Alternatively, regional initiatives such as the Forest Commission on Central Africa (COMIFAC) could bring a supra-national dimension to REDD (Dutschke and Wolf, 2007).

Box 3: A menu of REDD actions (adapted from Chomitz *et al.*, 2006)

- paying communities directly for reduced deforestation, based on the model of existing Payments for Ecosystem Services
- strengthening forest fire prevention programs
- improving land tenure security for forest-dwelling peoples
- increased efforts to reduce illegal logging
- higher taxes on large-scale land clearance
- promotion of industry and other off-farm employment
- agricultural intensification in favorable areas to relieve pressure on remaining forest lands
- strategic planning of road improvements to avoid unplanned logging or agricultural expansion

2.2.2. Financing REDD

A major unresolved issue within the REDD debate is the issue of financing. The amount, sources, and means of distribution of REDD finance are all aspects of the financing question which are still being discussed.

Estimates of the costs and benefits associated with REDD vary. Grieg-Gran (2006) uses the opportunity cost of alternative land uses to estimate the cost of a 50% reduction in global deforestation rates to be \$5 billion each year. More recent estimates, however, place the annual bill necessary for completely mitigating GHG emissions from forests through REDD at \$12.2 billion per year (Blaser and Robledo, 2007). Using a reference value of \$2.8/ton for CO₂ sequestered, the authors estimate that this price would generate conservation actions that would reduce by 65% the land-use based emissions from land conversion.

The technical complexity involved with organizing and implementing REDD will surely lead to significant transaction and administrative costs. Such costs will be particularly high in cases where governments find it difficult to identify and target threatened areas, or if they are unable to avoid leakage (Grieg Gran, 2006). Findings in Latin America indicate that administrative costs vary between \$4 and \$15 per hectare. Extrapolated to the 6.2 million hectares deforested in the major tropical forest countries, the total administrative costs could reach between \$25 and \$93 million yearly (Grieg-Gran, 2006). It should be noted that these estimates are highly uncertain, as the institutional design of REDD still remains hypothetical.

The finances that would be necessary to cover these costs are expected to come either from the carbon market, public finance, or a combination of both. Various submissions make calls for different funding arrangements. The Coalition for Rainforest Nations⁸ suggests a variety of funding

⁸ For more information, see: <http://www.rainforestcoalition.org/eng/>

mechanisms, but favours a market-based approach based on deeper cuts for Annex B countries. Brazil calls for the creation of an international trust fund that would be supported by public contributions from developed countries. Others favor an approach that would tap into existing carbon markets.

The issue of high transaction and administrative costs highlights an important underlying challenge for REDD policies, which is their capacity to effectively address the trade-off between equity and efficiency. While the economies of scale that could result from the use of larger and more centralized REDD mechanisms present the considerable advantage of limiting high transaction and administrative costs, they could face greater difficulty in taking local-level realities into consideration. This, in turn, could potentially compromise the successful delivery of benefits to the local level.

An additional cause for concern is the issue of governance. Indeed, it is feared that many of the countries that would be the main focus of REDD suffer from weak legal and institutional structures that limit their capacity to successfully govern REDD (Rubio Alvarado and Wertz-Kanounnikoff, 2007). This would be particularly problematic if a mandatory market mechanism was implemented as a means of funding REDD, as many governments might not have the capacity to ensure compliance with the market requirements.

However, it has been argued that a reliance on voluntary funding (e.g. Official Development Assistance (ODA)) to address deforestation will not deliver sufficient resources (Stern, 2006). In the case of ODA, it has actually been found that funding for forestry-related activities has been steadily decreasing (PROFOR, 2007). It has thus been argued that a combination of both voluntary and mandatory sources could be a solution, with a possible model being the the creation of an international fund that would act as an intermediary between buyers and sellers (i.e. the FCPF idea described earlier) (Rubio Alvarado and Wertz-Kanounnikoff, 2007).

2.2.3. Social concerns

As REDD is currently more of a prospect than a reality, it is difficult to accurately assess the potential livelihoods impacts that it might have. Lessons learned from the Noel Kempff project, mentioned earlier, provide an initial indication of what can be expected. In their analysis of the social impacts of the project, Asquith *et al.* (2002) find that many villagers in the regions feel both resentment towards the project (project carried out without their prior consent) as well as disappointment (inequitable distribution of benefits). Perceived losses in livelihoods and in areas under traditional tenure, as well as slow administrative procedures were also evoked as negative impacts of the conservation project. Nevertheless, the authors state that the Noel Kempff project has great potential from a climate, conservation, and livelihood perspective, and that the long-term impacts may well be largely positive.

An initial lesson learned from budding 'REDD-like' projects, such as the Noel Kempff example provided above, is that successful implementation is largely contingent on the capacity to fully integrate a broad range of stakeholders, and especially local communities, from the very beginning of the project design process.

The importance to bear such social concerns in mind has led to some skepticism with regards to REDD, and notably to the capacity of large international agencies, such as the World Bank, to successfully transfer the projected REDD benefits to the community level (Griffiths, 2007). Despite the stated objective to "*improve and sustain the livelihoods of 500 million poor, forest-dependent people by supporting sustainable forest management and agro-forestry based farming systems*" (GFP-FCPF, 2007), the World Bank's projected Global Forest Partnership, for instance, still draws many skeptical comments. The feared lack of involvement of local people and indigenous communities in the REDD negotiation process, as currently outlined in the GFP, is a main source of

concern (Griffiths, 2007). The urgent need to include social aspects into the REDD debate has been recently reinforced by observers who are keen to make sure that ‘top-down’ global and national policies are tailored to the rights and interests of local communities (WRM, 2007).

The need to ensure community benefits in the design of REDD schemes has been acknowledged for quite some time. Already, standards have been developed in order to provide guidance on ensuring that local communities are adequately integrated into forest management efforts. The CDM Gold Standard, for instance, ensures that forest-based projects carried out through the Kyoto Protocol’s Clean Development Mechanism (CDM)⁹ (which currently exclude REDD) are consistent with broader sustainable development objectives¹⁰. The Climate, Community, and Biodiversity Alliance (CCBA) has also provided a set of criteria for achieving climate, conservation, and livelihood benefits through sustainable land management projects¹¹.

Although such efforts remain both voluntary and preliminary, they could serve as important indicators for the development of appropriate standards in the larger scale implementation of REDD that would result from its inclusion into the international climate change regime. It must also be considered that compliance with and monitoring of such standards can form a barrier to entry into the market for small holders. There still is a need for further ground testing of such newly established methodologies (Griffiths, 2007).

⁹ Section 4.1.2 provides further discussion of the CDM’s relevance to the REDD debate.

¹⁰ For more information, see : <http://www.cdmgoldstandard.org>

¹¹ For more information, see : <http://www.climate-standards.org/>

3. Forests and Poverty

3.1. *Ambiguous linkages*

Healthy forests are essential to the well-being of a strong majority of the world's poorest societies (Smith and Scherr, 2003; Sunderlin *et al.*, 2007). It is estimated that some 60 million indigenous people are completely dependent on forests, while 350 million people are highly dependent, and 1.2 billion are dependent on forests for their livelihoods (World Bank, 2004). In Africa, the world's poorest continent, 600 million people have been estimated to rely on forests for their livelihoods (Anderson, 2006).

Of course, poverty exists outside of forested areas. Nevertheless, the significant overlap between tropical forests and poverty highlights a strong correlation between the two (Sunderlin *et al.*, 2005). This has led to much debate on the 'resource curse' and 'poverty trap' of tropical forests, both of which refer to the paradox whereby areas that are well-endowed in natural resources tend to suffer from high levels of poverty (Mayers, 2007).

Several comprehensive overviews have focused specifically on exploring these poverty to forests link (Orlando *et al.*, 2002; Angelsen and Wunder 2003; Fischer *et al.*, 2005). Despite the acute relevance of forests to poverty reduction, there still is considerable uncertainty surrounding the linkages between the two (Mayers, 2007). On the one hand, forests represent essential ecosystems upon which the rural poor depend for their own economic well-being. In this sense, they represent an invaluable asset that is essential for the sustenance of local livelihoods. On the other hand, forest-dwelling communities, who in the tropical regions are often very poor, are also the most proximate users of forest resources. In that sense, poverty can actually be conceived as being a driver of deforestation.

Building on this, it has been argued that lower levels of poverty can actually lead to greater sustainability through decreased pressure on forest ecosystems (Soriaga and Walpole, 2007). However, Angelsen and Wunder (2003) remind us that such considerations are far from being a generally applicable rule, and that greater wealth can also be a driver of environmental degradation. Nevertheless, it is commonly believed that greater economic growth will generate lower overall levels of poverty. While there certainly are risks that economic development will only favor a few powerful actors, it is still believed that the macro-economic benefits of sustained growth will, at least to some extent, trickle down to the poor (Angelsen and Wunder, 2003).

Conditions that result in an increased valuation of forest, such as higher demand for agricultural expansion, can lead to a negative correlation between rates of deforestation and poverty, as land conversion generates additional income. However, such a simplistic reduction of the poverty-forests linkages does not paint a full picture of the situation (Chomitz *et al.*, 2006). In some cases, deforestation is also a result of displaced populations seeking to exploit increasingly degraded land. An additional complexity arises when forest loss and degradation is generated by migrations that are facilitated through improvements in national infrastructure (i.e. the expansion of roads).

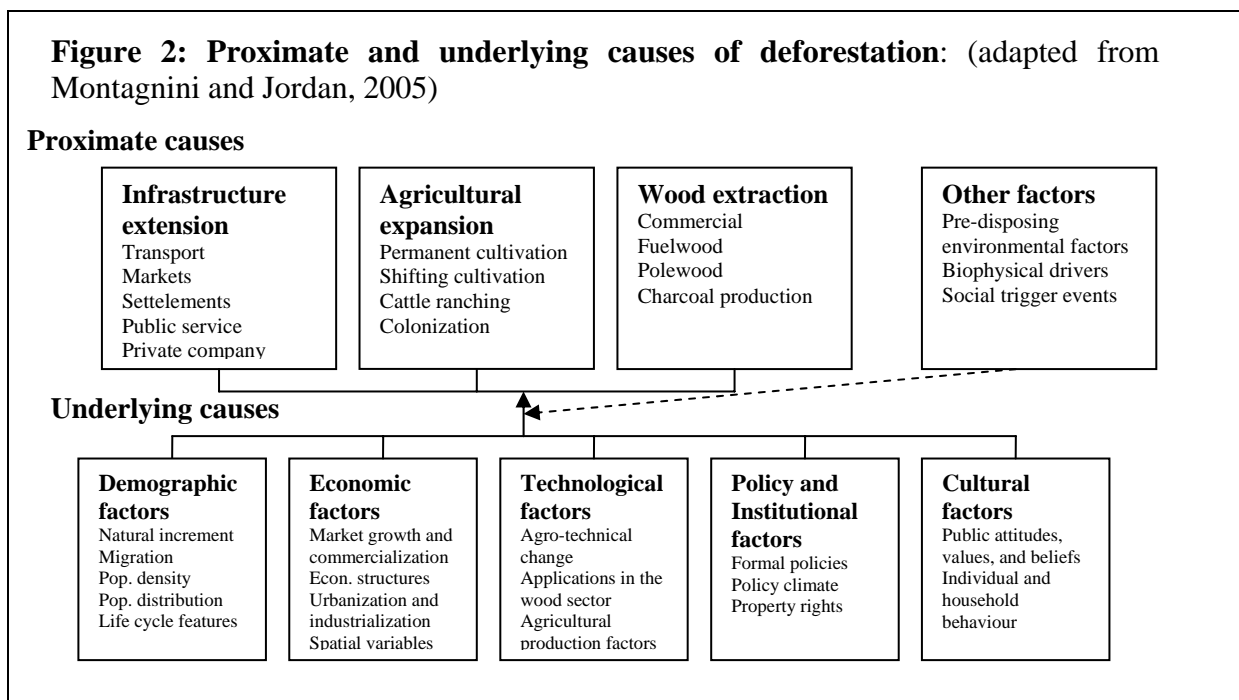
Overall, deforestation and environmental degradation are not believed to be an inevitable price to pay for economic growth (Pearce, 2005). On the other hand, forest conservation can be both a constraint as well as an opportunity for the poor. Depending on the scale and location of the area being analyzed, the linkages between poverty and forests will have highly variable implications. Case studies in Cambodia and Lao PDR suggest geographical, historical, and institutional factors all play a key role in defining the country-specific context of the poverty-environment nexus (Dasgupta *et al.*, 2003).

Complexity, uncertainty, and ambiguity stand out as defining elements of the forest-poverty relationship. Consequently, predictions on the effects of forest policy on poverty and of development policy on forests are very limited. Such considerations are important to bear in mind when discussing how best to ‘avoid deforestation’.

3.2. Tropical Deforestation

Tropical deforestation is a highly complex phenomenon, making it a difficult issue to tackle at the global level. Population growth and economic development are often designated as main causes of environmental degradation, but they do not provide a universally-applicable explication of tropical deforestation. It is important to bear in mind that causes of deforestation will vary according to both forest type and land use, along with the geographical (soils, climates) and institutional (markets, governance) frameworks in which they are set (Chomitz *et al.*, 2006).

In their comprehensive review on the drivers of tropical deforestation around the world, Geist and Lambin (2001) found that agricultural expansion at the proximate level and economic factors at the underlying level were the most prominent explanatory variables for deforestation. They both were significant factors in 96% and 81% of all cases, respectively (Geist and Lambin, 2001). More specifically, a growing demand for cheap agricultural goods (notably palm oil, beef, and soy), which results in wide agricultural expansion, is often identified as significant contributors to tropical deforestation (Mitchell *et al.*, 2007). Illegal timber extraction is another important cause of forest degradation. In Brazil and Indonesia, illicit removals are estimated to represent 80 to 90% of the overall extraction of timber (Lawrence, 2007).



In their study of the main proximate and underlying drivers of deforestation, Montagnini and Jordan (2005) provide a useful framework for such a task. A summary of their findings is provided in figure 2, above. Overall, the high complexity of the main drivers of deforestation makes the problem particularly difficult to tackle. Geist and Lambin (2001) are quite explicit in that regard.

After examining and synthesizing 152 sub-national case studies, the researchers conclude that “*no universal policy for controlling tropical deforestation can be conceived*”.

A more simplified categorization of the drivers of deforestation is offered by Moutinho and Santilli (2005), who distinguish between the main direct and indirect causes of deforestation:

- **Direct:** agricultural expansion, mining, and logging
- **Indirect:** agricultural subsidies, investment in infrastructure, unclear land tenure, weak government surveillance, demand for timber and non-timber forest products (NTFPs), and market pressure on land conversion.

It has been noted that higher rates of deforestation are associated with higher profits (Chomitz *et al.*, 2006). These trends have notably been confirmed in the Brazilian Amazon, where a positive correlation between the rate of deforestation and GDP growth has been observed (Alencar *et al.*, 2004; Fearnside and Laurance, 2003). Driven by growing demand for food, energy, and materials, industrial processes in particular have significantly degraded tropical forests around the world.

Despite the heightened relevance of economic and industrial forces as underlying drivers of deforestation, the overall complexity of the phenomenon calls for a careful consideration of threats, and an enhanced understanding of the context-specific causes that define the socio-ecological landscape of interest.

3.3. Poverty

As is the case with tropical deforestation, poverty is a large and highly complex issue. When dealing with such a far-reaching concept as poverty, some clarity is needed for a sound consideration of the linkages with deforestation. Although natural resource management decisions are increasingly discussed in relation to poverty and livelihoods, there is little clarity of the definition of ‘poverty’ (see Box 4). Traditionally, poverty was measured using economic indicators such as the Gross Domestic Product (GDP), with the poorest of the poor defined as those earning less than \$1USD per day. The Human Development Index, developed by the United Nations Development Programme (UNDP), includes health and education as parameters in poverty assessment.

Box 4 : The multiple facets of ‘poverty’:

In an effort to break down the various components of this complex notion, Angelsen and Wunder (2003) make a clear distinction between:

- poverty **reduction** (lifting people out of poverty),
- poverty **prevention** (preventing more people from falling into poverty),
- and poverty **alleviation** (a combination of the two above-mentioned terms).

There are now various frameworks for the assessment of poverty, developed with the recognition that poverty reaches beyond traditional economic measures. These tend to incorporate natural, human, social/political, and physical capital and range from indicators such as income, access to resources, and basic infrastructure, to the vulnerability of populations to shock, political freedom, and community organization. Another distinction which can be made when discussing poverty is between those efforts that are targeted at supporting livelihoods, those that aim to create wealth, and those specifically dedicated to poverty reduction (PROFOR, 2007).

In light of the vast scope of issues, it has been recommended to adopt a comprehensive approach to poverty in tropical regions and to integrate it in the context of broader social dimensions

of human development (McQueen, 2006). In an effort to bring some clarity to the complex issue of poverty, McQueen et al (2001) offer the following four defining characteristics of the poverty concept:

- lack of representation
- inappropriate laws and policies
- weak institutional relationships
- isolation

An important insight from this multi-faceted description of poverty is the importance of equity. Indeed, issues such as limited market access and poorly defined property rights have long stood out as barriers to the potential livelihood improvements provided by environmental and development projects. Efforts that might strive to go beyond poverty *prevention* and that aim to alleviate current trends need to address the many structural obstacles to human development. This is an issue of equity. Indeed, poverty *alleviation* will not be feasible unless the broader underlying trends that support economic marginalization within and between societies are properly addressed.

Angelsen and Wunder (2003) offer two main conceptualizations of the term ‘poverty’– the first one related to growth (developmentist view), and the other related to distribution (class-based view). Given the high relevance of issues such as weak governance, limited market access, and poor representation in the context of poverty, it seems appropriate to consider the distributional aspects as essential components of development.

An assessment of the equity concerns as they relate to policies affecting forest-dependent populations cannot overlook issues related to gender. It has been found that reforestation projects carried out in India and Nepal without a gender perspective faced problems with the implementing forest protection (Agarwal, 2001). The Noel Kempff project has also faced such problems. In this case, it was found that many of the objectives were not achieved because there was little or no participation at all of women in the forestry team, conservation team, government technical support, or community councils (Boyd, 2002). Such examples provide initial evidence that the distributional aspects of forestry projects and policies have a relevance that extends beyond ethical concerns, and that can sometimes have a direct influence on the effectiveness of a given scheme.

Bearing in mind the importance of equity and acknowledging that pro-poor environmental policies should focus primarily on ensuring that nobody is made worse off by the implementation of a given policy; an appropriate entry point for evaluating the socio-economic implications of REDD would be to focus on those societies who are most vulnerable to environmental degradation.

3.4. Addressing vulnerabilities

Poor people are particularly vulnerable to environmental degradation in general and to tropical deforestation in particular. Natural capital, or the contribution that the environment makes to human well-being, is estimated to directly account for over a quarter of the wealth of low-income countries (World Bank, 2005). In OECD countries, on the other hand, this direct dependence on natural capital is estimated at a mere 2%.

A convenient means of linking natural capital with human well-being is the concept of ecosystem services, which relates to the many benefits that people derive from ecosystems (MA, 2005). The Millennium Ecosystem Assessment (MA) offers a sobering overview of our dependence on ecosystem services by providing unambiguous data on the current degradation of our natural life-support system: an alarming 60 to 70% of all ecosystem services are currently deteriorating.

It is useful to bear in mind that forest-dwelling communities cannot be conceived as being a homogenous group. As a natural environment, forests represent just one element of a much more complex situation defining poverty in the tropical regions. Also, it should be reminded that

dependence on forest resources varies on many other factors beyond poverty (PROFOR, 2007). Nevertheless, it can be expected that the dependence of local communities on their natural resources will be more pronounced in cases where poverty is more widespread. However, a recent study of the dependence of local communities on forest resources found that while most people in the six sites studied are at least ‘partially dependent’ on forest resources, dependence was often decreased when agriculture was a significant source of income (PROFOR, 2007). It can thus be expected that vulnerability to forest loss will be particularly pronounced in areas where agricultural systems are either inexistent or poorly developed.

Health and safety are paramount issues when considering the vulnerabilities and dependencies of the rural poor. It is estimated that 97% of the world’s death resulting from natural disasters is suffered in low income countries (Abramovitz, 2001). Furthermore, it has been found that deforestation can lead to 300 fold increase in the risk of malaria infection (Yasuoka and Levins, 2007). Considering that many local populations depend on their natural environments as a source of medicine; deforestation and land degradation can seriously compromising the availability to these critical resources.

3.5. *Can REDD be made pro-poor?*

It has been argued that poverty alleviation activities can and should be inscribed into environmental efforts. Implicit to such claims is the capacity for sustainably managed ecosystems to deliver valuable goods and services to local communities. This applies, of course, to the sustainable management of tropical forests. Consequently, the conservation or sustainable use of forests is believed to be an important contributor to the achievement of the Millennium Development Goals (Pearce, 2005; Mayers, 2007). The linkages between the poverty centered targets of the Millennium Development Goals (MDGs) and forests have been analyzed by Mayers (2007), who makes the case for considering the 7th MDG, which is to ensure environmental sustainability, as a foundation for all other MDGs.

Unfortunately, it has been found that forests are often inadequately integrated into poverty reduction and development strategies. A World Bank study found that only 12 out of 43 Poverty Reduction Strategy Papers (PRSPs) reviewed offered a coherent strategy for policy reform to improve forest management within the context of broader development objectives (PROFOR, 2007).

Examples of positive contributions of forest resources to addressing poverty and the MDGs are presented through a collection of case studies compiled for the European Tropical Forest Research Network (ETFRN, 2007). The evidence collected from these studies carried out in tropical countries around the world shows how a greater recognition of the values of sustainably managed forest resources can often have positive livelihood effects for local populations. However, for this to occur, the actual financial benefits that would accompany the enhanced valuation of forest resources (e.g. through the eventual establishment of REDD as a feasible mitigation strategy) need to effectively reach the local level.

But can we really expect REDD to succeed in delivering benefits at the local level? Despite the growing awareness that a greater appreciation of natural capital – due notably to the expansion of the carbon market – there are many reasons to remain skeptical with regards to the capacity that REDD will have to ensure the equitable distribution of benefits to the rural poor. Issues related to poorly defined land rights, limited market access, and corruption often stand out as significant barriers to local level participation in environmental and development initiatives. How can REDD overcome such hurdles? In an attempt to better gauge the ‘pro-poor’-potential of REDD, the following section attempts to draw some lessons learned from relevant experiences.

4. Lessons Learned From Relevant Experiences

4.1.1. Preliminary considerations

As stated earlier, the international community has yet to reach consensus on the modalities of financing REDD. While not all UNFCCC Parties have agreed to integrate market-based mechanisms into an eventual regime, this paper will assume that carbon finance will be used as a means of financing REDD.

Recently, eight tropical countries, jointly covering 80% of the world's tropical forests, have united to form the "Forestry Eight" (F8) coalition. Together, these countries account for over 6 million hectares of annual deforestation (Grieg-Gran, 2006). The F8 members – Indonesia, Brazil, Malaysia, Papua New Guinea, Gabon, Costa Rica, Cameroon, and the Democratic Republic of Congo – all hope to build momentum behind REDD in an effort to attract international funding for avoiding deforestation. In light of these recent developments, compromise on the modalities of financing REDD is considered very possible (Greenpeace, 2007).

The main purpose of assessing lessons learned from the carbon markets is to gauge the main distribution issues that might stand in the way of a socially sustainable implementation of REDD.

4.2. Carbon Finance

While the main incentive for using the carbon market to help finance REDD is to attach a greater value to carbon-rich ecosystems, it also has the potential to deliver ancillary benefits. As new institutions develop to ensure that carbon finance effectively influences land use decisions at the local level, REDD could help generate employment and provide opportunities for education, training, and social capacity building. Obviously, incentives for forest protection will also support biodiversity conservation and cultural heritage preservation efforts. In addition to biodiversity and culture, investments in forest protection would also support the delivery of several key environmental services (e.g. water filtration, soil stabilization, plant pollination) upon which the rural poor depend.

When we consider that poor farmers often convert forests for small and ephemeral gains, the opportunity for tapping into the international carbon market as a means of creating incentives for more sustainable land management is believed to be quite attractive (Smith and Scherr, 2003). In many cases, the market price for a hectare of sequestered carbon offset is worth 50 times the value that poor landowners perceive from converting that hectare to other land uses (Chomitz *et al.*, 2006). In the case of the Noel Kempff National Park mentioned earlier, it has been found that forest conservation is more financially viable than alternative land uses, such as soybean production (Silva-Chavez, 2005).

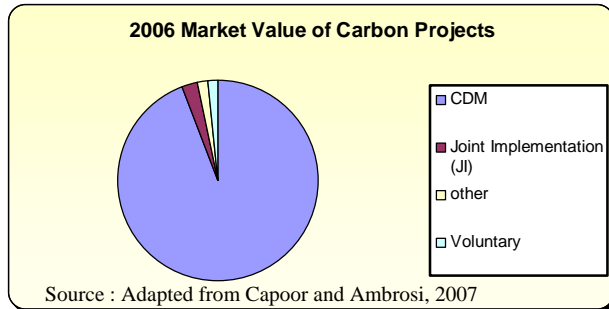
At this stage, it is useful to clearly differentiate between allowance-based (exchanges in emission allowances generated by regulators under a cap-and-trade system) and project-based transactions (exchanges in emission credits generated by mitigation projects) (Capoor and Ambrosi, 2007). Another key distinction to be made is between the transactions that are made in compliance with international, national, or sub-national regulation (i.e. regulatory markets), and those that are made on a purely voluntary basis (strictly project-based).

On the regulatory front, most carbon allowances (approximately 97% of 2006 market volume) are traded through the Kyoto-inspired European Union's Emissions Trading Scheme (EU ETS)¹², while carbon projects are mostly being carried out through the Kyoto Protocol's Clean

¹² It should be noted that the EU ETS does not allow for trade in carbon credits generated through forestry-based projects

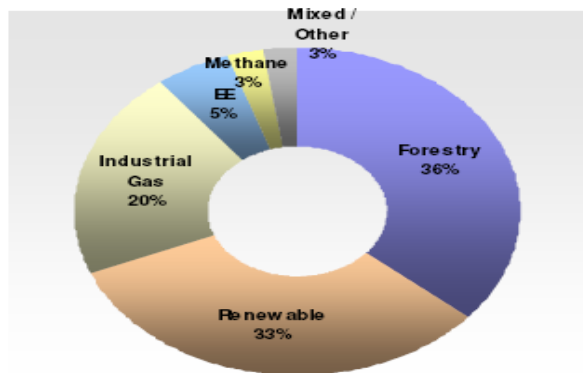
Development Mechanism (CDM) (approximately 92% of 2006 market volume) (Capoor and Ambrosi, 2007). Projects carried out through the voluntary market are difficult to track, but they are believed to represent about 2% of the CDM-dominated projected-based carbon market (Capoor and Ambrosi, 2007).

Figure 3: Regulatory vs. voluntary market



As can be seen from figure 3, the size of the voluntary market is a small fraction of that of the regulatory market. However, it should be stated that forest-based projects are marginal in the regulated market and are limited to reforestation and afforestation. On the other hand, it has been found that forestry projects, which have the distinct advantage of providing several environmental benefits to carbon investors (e.g. providing habitat for wildlife, reducing soil erosion, and mitigating flood risks) are growing in numbers and are becoming a main preference for offset buyers operating in the voluntary markets (Hamilton *et al.*, 2007) (see figure 4).

Figure 4: Different types of voluntary transactions: (Hamilton *et al.*, 2007)



4.2.1. The Kyoto Protocol's Clean Development Mechanism (CDM)

At the international level, market-based instruments designed to reward mitigation projects in developing countries are set within the context of the Kyoto Protocol's Clean Development Mechanism (CDM). As the CDM officially recognizes certain land-use, land-use change and forestry (LULUCF) projects¹³ as mitigation strategies, it has been suggested to extend the mechanism to include investments in REDD.

The CDM market is currently dominated by Asia (and by China in particular), in which clean technology projects make up approximately 75% of a portfolio worth \$US 30 billion. It has been

¹³ LULUCF projects in the CDM are limited to afforestation and reforestation.

estimated that up to \$43 billion could be available to developing countries if a REDD framework is formalized, and that forested areas could be worth \$200-\$10,000 per hectare (Peskest *et al.*, 2007). Thus, a major shortcoming of the CDM is its poor presence in other areas of the developing world that might be in greater need of incentives for clean development.

In Africa, for example, clean energy CDM projects are often not feasible, as only a small percentage of the population is connected to the energy grid (Jindal, 2004), and much of the economic potential lies within the natural capital. However, it has been argued that while Africa faces serious infrastructure challenges in the energy and industry sectors, it has a strong potential for the implementation of land use, land-use change, and forestry (LULUCF) projects (Capoor and Ambrosi, 2007). Unfortunately, LULUCF projects to date have had a very limited reach in the CDM, accounting for less than 4% of the market share in 2005 (World Bank, 2006). The fact the CDM projects are excluded from the world's largest carbon market, the EU ETS, has seriously limited their reach, notably by lowering the overall demand (World Bank, 2006).

Overall, the CDM has yet to make an impact in areas where it would be most needed, notably in Africa. A recent case study in Cameroon comes to the fairly straightforward conclusion that the institutional support necessary to make the CDM work there is simply inexistent (Minang, 2007). It is important to bear in mind that transaction costs still represent a significant barrier to the development of LULUCF projects within the CDM (Smith and Sherr, 2003). Enforcement costs stand out as being particularly burdensome, especially if an effort is made to reach out to small landowners (Milne, 1999; Jindal, 2006).

The CDM is often evoked for its failure to meet its objective of sustainable development, notably in the interest of cost effectiveness (Sim *et al.*, 2004; Wara, 2006). The sustainable development clause of the CDM reaffirmed the sovereignty of the host-nation in terms of ensuring that social concerns were adequately integrated (UNFCCC, 2001), but this has apparently not always led to on-the-ground results.

4.2.2. The Voluntary Carbon Market

While the bulk of carbon credits currently flowing across borders are set within the regulatory framework of the Kyoto Protocol, the voluntary market is growing rapidly (Capoor and Ambrosi, 2007). This growth is expected to continue over the coming years, and by 2010 should match the amount currently being traded through the Kyoto Protocol's Clean Development Mechanisms (CDM) (IFC, 2006).

Recent trends in the voluntary markets tend to show a greater diversification of offers in forest-based offsets, which indicates that the market is no longer limited to large-scale efforts, such as those implemented by large international environmental organizations (e.g. the Noel Kempff project operated by The Nature Conservancy). In 2006, the major sellers that previously dominated the voluntary market saw their share of offset sales shrink to 60% of the overall volume of transactions. The diversity and competitiveness of the market is thus increasing as smaller retailers, brokers and project developers become involved (Hamilton *et al.*, 2007).

An interesting example of how the international market for carbon offsets can reach local communities in the African continent is offered by the International Small Group and Tree Planting Program (TIST). This small-scale reforestation program is currently auctioning carbon offsets on eBay for a starting price of \$8.50 per metric ton (<http://www.tist.org/>). The projects are located in Uganda, Kenya, Tanzania, and India. Nevertheless, preliminary assessments of the projects implemented by the initiative have led to mixed results (Peskest, personal communication, October 30th, 2007).

As with the CDM, Africa has remained on the margins of the development of voluntary carbon markets, and has benefited from less than 10% of the overall activity in the voluntary carbon

market (Jindal, 2006). Moreover, although the continent is home to the second largest tropical forest ecosystem in the world – the Congo Basin – many of the existing carbon projects are found outside of this region in Eastern Africa (Jindal, 2006). Lack of technical expertise, difficulties in securing legal land ownership, temporary credits and high transaction costs are some of the main constraints impeding market growth in Africa (Jindal, 2006).

However, the issue of marginalization from the carbon market is by no means restricted to the African continent. A recent case study in Panama has found that only a few households would be able to derive benefits from carbon finance, due notably to “*heterogeneity in livelihood strategies and uneven asset endowments among households*” (Tschakert *et al.*, 2007).

In summary, the use of the voluntary carbon market for incentivizing REDD will require sufficient oversight or regulation, as well as additional pro-active measures to make sure that it does not exacerbate poverty levels.

4.2.3. Key findings

The market is a terrific opportunity, but there are some significant risks to rural livelihoods that can compromise the ability of economic incentives to influence land-used decisions at the local level (Smith and Scherr, 2003). Unless populations that are currently marginalized from the carbon market are able to participate, there is reason to expect that the benefits will not be equitably shared. It has thus been argued that further work at developing market-based incentives through REDD should fit into the wider development interests of tropical countries (Peskest *et al.*, 2006).

Inevitably, higher transaction, administrative, and enforcement costs are all likely to hinder a participatory approach to carbon finance. However, it has been argued that a greater involvement of local communities at the beginning of projects could reduce overall transaction costs (Milne, 1999). In addition to higher costs of implementation, governance stands out as a major hurdle to the equitable distribution of carbon finance. The high risk associated with the investments (lack of insurance in case of forest fires or in case of urgent need for alternative resource use), lack of capital availability to make upfront payments, and poorly established property rights have been highlighted as significant barriers to the participation of poorer communities in carbon markets (Pfaff *et al.*, 2007a).

4.3. Payments for Ecosystem Services (PES)

The capacity that REDD has to build on incentives for carbon sequestration to integrate other budding markets for forest-based ecosystem services makes it a particularly attractive mitigation strategy (Peterson *et al.*, 2007a). Indeed, the recent rise of the carbon market has drawn increasing attention to the development of innovative payments for ecosystem services (PES) schemes. PES refer to voluntary transactions whereby a well-defined ecosystem service, or a land-use likely to secure that service, is being ‘bought’ by at least one buyer from at least one provider – if, and only if, the provider secures the provision of the service (Wunder, 2005).

The most widespread form of PES are found in watershed-management schemes, whereby downstream water users (utilities, bottling companies, hydro-electric companies) reward upstream land stewards for the water-related ecosystem services their forests maintain (i.e. flow regulation, filtration, erosion control.). Beyond these local-level and a couple of national-level schemes (e.g. Mexico and Costa Rica), the PES model does not extend far beyond the international carbon market.

However, recent attention has been directed towards to the international development of PES (IPES), which is hoped to help channel greater amounts of ‘sustainable’ investments from North to South (IUCN-UNEP, 2007). It is believed that REDD could become a significant opportunity for the development of IPES, as it has the potential to jointly exploit the multiple ecosystem services

provided by forests. Indeed, the ecosystem services delivered by tropical forests do not only apply to the communities living in its direct vicinity (i.e. through crop pollination) or to downstream water users (i.e. through water flow regulation or sediment retention), but also to scientists, artists, tourists, and entrepreneurs coming from all four corners of the world.

Thus, the distribution of economic incentives through REDD could facilitate the implementation of PES at a broad landscape-level that jointly rewards a bundle of ecosystem services (e.g. carbon storage, biodiversity protection, watershed protection, preservation of cultural values, plant pollination, etc.). Such a bundled approach could potentially encourage a more comprehensive appreciation of the wide ‘portfolio of assets’ that local communities derive from forests (Bass, 2006).

The bundling of PES within a landscape approach could potentially make a positive contribution to social sustainability. More localized ecosystem services, such as watershed protection or the conservation of a specific biological corridor, are strongly dependent on collective action. Thus, the local communities will necessarily be integrated into the management scheme, making them key stakeholders to have on board for the success of a landscape-level PES project

However, experience with the ‘bundled approach’ to PES has provided mixed results when implemented by a central governing authority. A particularly relevant case for REDD is the Costa Rican national-level PES scheme, where limited smallholder access to the payments distributed by the government has led to some criticism by observers (see Box 5).

Box 5 : The Costa Rican PES experience

In 1996, a revision of the Forestry Law enabled the creation of a National Forest Fund (FONAFIFO) in Costa Rica. FONAFIFO then became responsible for managing a nation-wide system of payments for ecosystem services (PES). The scheme rewarded forest landowners for the provision of carbon sequestration, watershed protection, biodiversity conservation, and landscape beauty. Although it has provided an interesting insightful model for implementing PES at the national level, the scheme has generated significant criticisms on the social front (Adamson-Badilla, 2003; Baltodano, 2004; Hope *et al.*, 2005; Zbinden and Lee 2005, Pfaff *et al.* 2007a). It was found that large landowners are reaping the majority of the benefits, with smallholders often marginalized by high transaction costs and burdensome administrative processes.

Many lessons learnt from experience with the carbon market also apply to PES. The key challenge is to include marginalized populations. In Nicaragua, it was found that transaction costs were the most significant barrier to smallholder participation (Pagiola *et al.*, 2007). Other studies carried out in Bolivia, Ecuador, and Vietnam have found that in cases where local level participation was significant, the actual poverty benefits to communities were questionable (Wunder, 2007).

Despite efforts being made in Costa Rica and elsewhere; the challenge of ensuring equitable participation while limiting transaction costs is very difficult to overcome. Moreover, issues related to unclear property rights regimes and limited market access have also been evoked as significant barriers to a pro-poor implementation of PES (Savy and Turpie, 2004). Although PES should not be considered as being a specifically ‘pro-poor’ environmental policy tool, ensuring the pro-poor implementation of PES will necessitate pro-active measures that will help rural communities compete in a market with larger landowners (Angelsen and Wunder, 2003).

4.4. Large-scale land use policies

As previously stated, a project-based approach to REDD such as the one used by the voluntary carbon market will not be sufficient to ensure that the threat of deforestation is being adequately addressed (i.e. the 'leakage' issue). Consequently, additional international, national, and sub-national measures will need to be in place to ensure that REDD projects are contributing to the mitigation of GHGs through the effective avoidance of deforestation and ecosystem degradation.

The example of the Costa Rican experience, given above, provides an initial insight to the institutional complexities involved with the combined use of top-down incentives at the national level and equitable participation at the local level. This section will attempt to draw similar experiences from other large-scale land use policies in an effort to gain a stronger appreciation of the kind of sector-wide reforms that will be necessary to ensure the pro-poor implementation of REDD.

While the section is articulated around the three main land-use sectors of forestry, conservation, and agriculture, it is important to bear in mind that poverty in tropical forests is likely to be affected by many other sectors of activity. An appropriate example of a sector which is likely to have indirect effects on deforestation and local livelihoods is infrastructure development. Road expansion is particularly relevant, as it has been found to have a non-negligible effect on rates of deforestation. A study carried out in Brazil has found that the effects of roads on deforestation depend on the areas concerned, and tend to be more significant in areas where land clearing has already begun (Pfaff *et al.*, 2007b).

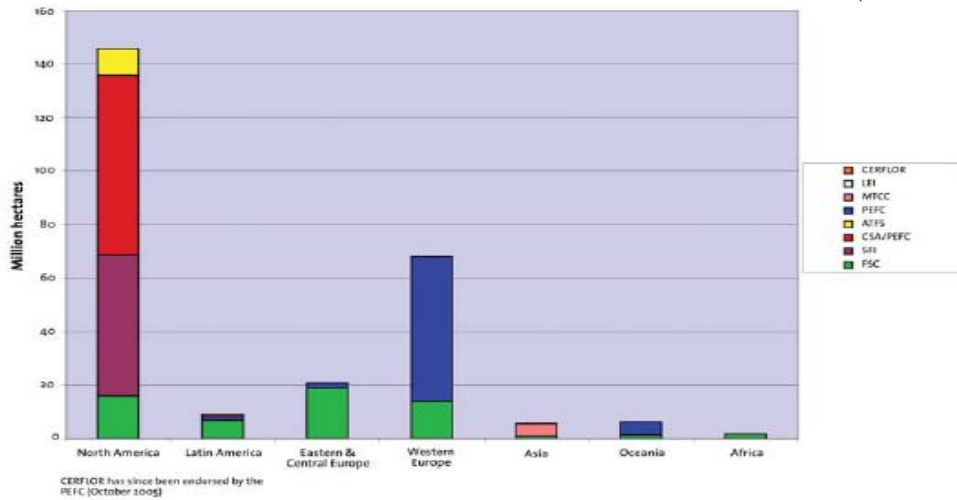
4.4.1. Forestry

The forestry sector will inevitably be a central focus in the design and implementation of REDD policies. A main challenge will be to combine the commercial use of forests with conservation or restoration activities aiming at maintaining and/or enhancing land-based carbon stocks. Furthermore, it will be essential to ensure that local livelihoods are adequately integrated into the forestry-related land-use policies.

Significant efforts have been made to ensure that the commercial use of forests does not compromise sustainable development. In addition to existing certification schemes, such as the Forest Stewardship Council (FSC), reduced-impact logging and sustainable forest management (SFM) provide promising examples of existing attempts to mitigate the negative environmental impacts of logging. However, in practice these approaches do not always succeed in addressing social concerns.

As with carbon finance, distribution is a crucial issue. At the global level, most of the land is certified as being under sustainable forest management is found in Europe and North America (see Figure 5, Cashore *et al.*, 2006). Whilst standards are increasingly being developed and applied for tropical forests, small landowners may still find the resources required in the certification process to be prohibitive.

The uneven distribution of participation in sustainable forestry is also an issue at the sub-national level, as economies of scale have often meant that large timber companies receive the greater share of government-allocated forest concessions, leaving smallholder and community-based enterprises on the margins (Smith and Scherr, 2003). This is mainly due to the fact that many local communities operate outside of official government structures (CIEL, 2002).

Figure 5: Hectares of forest under various certification standards: (Cashore et al., 2006)

In many areas, forests are considered as common property, and are therefore government owned. A particularly relevant example is Indonesia, where the government owns most all of the forest resources and is responsible for allocating community-based property rights (CBPRs). Despite recent efforts at decentralizing the political decision-making process down to the local level, legal recognition of CBPRs has not necessarily increased (CIEL, 2002). A recent report by the Center for International Environmental Law finds that state policies have had negative impacts on local communities and that “*collusion between big business and government has forced many local people to surrender their CPBRs to business operations*” (CIEL, 2002). With a great majority of the land allocated to forest concessions, the interests of logging and plantation businesses often trump those of local communities (CIEL, 2002).

Positive results in decentralized forest management have been reported from efforts at promoting Participatory Forest Management (Schreckenberg and Luttrell, 2007). A relevant example is the ongoing initiative on developing a worldwide network of Model Forests. Model Forests represent a promising landscape-level approach by which multiple stakeholders are integrated into the decision-making process of managing forest ecosystem management. By focusing specifically on the social aspects of sustainability, the Model Forests approach is particularly well adapted to the integration of poverty concerns (Bonnell *et al.*, 2007).

While political decentralization can be seen as a means of ensuring a more participative implementation of forestry policies, it does not always translate to on-the-ground improvements. Agarwal (2001) provides the example of community forestry projects in India and Nepal to show how certain stakeholder groups, notably women, have been excluded of seemingly participative schemes. Another recent study in Nepal has found that the domination of local elites is a common characteristic of community based management efforts (Bhattarai, 2007). Elite capture was also reported in an African case study on forest resource management. Oyono (2004) reports that, despite claims of a decentralized forest management policy, bureaucratic forces in Cameroon still prevent local communities from fully engaging in the commercial management of their lands.

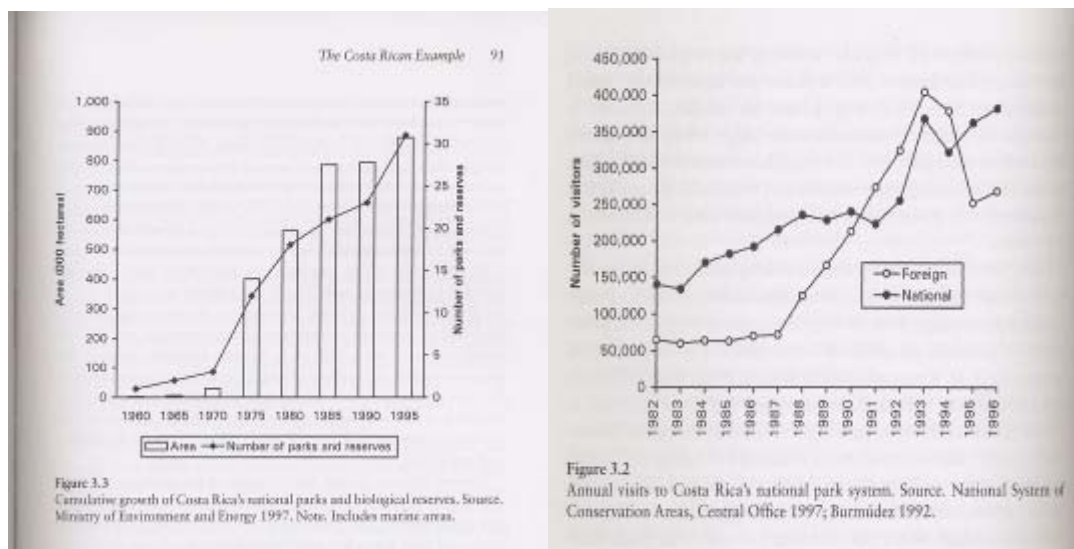
Similar lessons can also be learned from the Amazon region. Indeed, it has been found that paternal relationships and external interests have often defined forest management practices, thereby limiting the capacity of local communities to benefit from their forest resources. The authors of a recent study find that positive poverty outcomes cannot be conceived in the Amazon region without restructuring the existing institutional arrangements (Medina *et al.*, 2007).

4.4.2. Conservation

Perhaps the most REDD-relevant type of land use policy is the management and enforcement of protected areas. In cases where forest conservation is considered as an effective means of mitigating threats to tropical deforestation and degradation, then protected areas could provide a significant contribution to GHG mitigation.

Overall, the social implications associated with the creation of protected areas are mixed: sometimes they are good for local communities, sometimes not (Scherl *et al.* 2004). Protected areas that allow for the sustainable use of the forest resources are often key providers of ecosystem goods and services upon which local communities depend for their well-being. In terms of income generation, tourism in general – and ecotourism in particular – probably represents the main opportunities for communities living in and nearby protected areas. Costa Rica provides a strong example of how international tourism revenues and protected areas are mutually supportive (see figure 6). Employment as park rangers is another potential livelihood benefit of protected areas (Scherl *et al.*, 2004).

Figure 6: Expansion of national parks and reserves (1960-1995) and growth in number of visitors to Costa Rica's National Parks, 1982-1996: (Steinberg, 2001)



As ecotourism represents a major component of the country's tourism industry, Costa Rica offers a good example of how sustainability can be coupled with economic growth. However, the capacity that local communities have to access the benefits associated with the expansion of the protected area network is largely contingent upon their access to such areas. In some cases, certain protected areas can limit the capacity that communities have to derive ecosystem goods and services from their natural environment (Wiersum and Ros-Tonen, 2005).

Experience has shown that local communities have been displaced by the establishment of protected areas, with strict forest protection measures cutting their access to vital resources (Smith and Scherr, 2003). Communities that have a high level of dependence on the collection of non-timber forest products (NTFPs), which are often used as medicine or food, are particularly vulnerable to such restrictions. This could have dramatic effects on local economies, affecting income, health and employment.

It is equally important to recognize the cultural values that local communities associate with their forests. Long standing traditions risk being undermined by thoughtless 'carving-up' of forest

areas into designated areas that might deny local communities of the rights and responsibilities that they have defined their traditional land management regimes.

Overall, there is serious concern that REDD incentives could be used to fuel a 'guns and guards' approach to forest protection, further marginalizing vulnerable populations. Consequently, REDD risks reinforcing outdated, inefficient and discriminatory forest protection models (Griffiths, 2007).

A recent study in Northern Thailand has found that the net benefits generated by the designation of Protected Areas often accrue either at national or global levels, with local communities mostly incurring negative costs (Flaming *et al.*, 2007). Griffiths (2007) also mentions the same region in evoking cases where forced evictions of local communities were carried out in the name of providing 'alternative sustainable livelihoods'.

Nevertheless, there has been a growing trend towards community-based management of protected areas which should not be overlooked. If communities had access to the area to manage their own resources, then the fact that success would depend on the benefits accrued locally would incentivise the provision of such benefits by investors. Diversification of local incomes, integrated with sustainable management of timber and NTFP, along with strong policies to remove the drivers of deforestation on a national level, could thus be more beneficial than large-scale strict PAs (Scherl *et al.*, 2004).

4.4.3. Agriculture

The recognition of the importance of land degradation within the REDD debate will mean that actions will not be limited to the strict protection of forest areas. In many areas, forests are set within a broader managed landscape from which human interference cannot be excluded. Thus, sustainable land management has often been evoked as a means of integrating REDD into inhabited areas where agriculture often represents a major type of land-use.

Responsible for approximately 14% of total GHG emissions (Stern, 2006), and a main competing land use to forestry, agriculture, has a significant impact on deforestation rates and on national carbon stocks. Also, the MA (2005) has confirmed agricultural expansion as a key driver of biodiversity loss. Recent trends in agricultural policy will undoubtedly have an important influence on national level capacity to carry out REDD policies in rural lands.

In Costa Rica, it has been found that lower rates of deforestation were largely explained by a decrease in agricultural activity, due notably to lower prices of beef exports (Pfaff and Sanchez-Azofeifa, 2004). Research in Brazil comes to similar conclusions on the strong influence of agricultural commodities prices on rates of deforestation (Chomitz *et al.*, 2006). However, it should be stated that these effects are often closely related with broader macroeconomic trends, such as those affecting international trade and currency exchange rates.

Generally speaking, it appears as though agricultural returns have a strong influence on land use decisions, and therefore represent a significant motivation for the conversion of forests. Consequently, agricultural expansion can actually be seen as providing an opportunity for rural communities to enhance their livelihoods. Nevertheless, when we consider that the market price for a hectare of sequestered carbon offset can equal up to 50 times the value that poor landowners perceive from converting that hectare to agricultural land uses (Chomitz *et al.*, 2006), then there is an opportunity for the establishment of win-win situations whereby poor communities are provided livelihood opportunities through conservation.

In an analysis of current trends in the governance of rural lands, Ian Hodge finds liberalizing trends could potentially reduce incentives for food production and provide landowners with a broader set of land use options, including conservation (Hodge, 2007). His findings are based mostly

on experience gathered in Europe. Indeed, institutional experience with rewarding landowners for the sustainable management of the rural landscape has mostly taken place in Western countries.

The European Union's Common Agricultural Policy (CAP) and the United States' Department of Agriculture both provide incentives for sustainable land use. These agri-environmental schemes provide payments to landowners who retire land from productive use or for adopting less-intensive farming practices (OECD, 2004). It is believed that agri-environmental schemes could potentially be adapted to allow for the implementation of carbon-market incentives (Richards *et al.*, 2006). However, the possibility of transferring this institutional capacity to developing countries has yet to be clearly elucidated (UNDP-GEF, 2006).

As we have seen from other sectors of economic activity, the lack of institutional capacity in developing countries is a significant hurdle to a pro-poor implementation of top-down agricultural policies. Nevertheless, some landscape-level models of intermediate land uses that are being tested in tropical regions provide some promising insights for future improvements. Experience in addressing deforestation has shown that both local and global benefits can be achieved by focusing efforts on intermediary land uses, such as agroforestry (ASB, 2007). Other projects, such as those carried out in ecoagriculture and silvopastoral systems also offer some interesting perspectives on the type of land-uses that might allow rural communities to access carbon markets without compromising their income-generating agricultural activities (see Box 6).

Box 6 : Mixed land-use strategies for combining conservation with agriculture :

- *Agroforestry* is a term commonly used to describe land-use systems in which trees are integrated into agricultural practices.
- *Ecoagriculture* can be defined as the search for a consorted management effort that combines food production and the conservation of ecosystem services (McNeely & Scherr 2003).
- *Silvopastoral systems* focus on combining the objectives of conserving biodiversity while improving the productivity of dairy farming, nutrient recycling, and sustaining the harvest of marketable goods such as timber, fruits, fodder, and fuel wood (Pagiola *et al.*, 2004).

4.4.4. Key findings

Although they are more economically viable, large-scale projects (both conservation and plantation) pose serious problems to local livelihoods, notably restricted access to resources (Smith and Scherr, 2003). A particularly worrying risk of marginalizing local stakeholders is the potential threat that REDD projects might pose for food security. If land becomes locked into strictly enforced carbon projects, it could directly threaten subsistence needs of the rural poor (Jindal and Nagar, 2006). Incentivizing land uses that allow for multiple uses (i.e. conservation and agriculture) could potentially provide a means of preventing this type of dilemma. Local communities engage in wide variety of forest related activities, such as agriculture, animal keeping, and the collection of NTFPs. Thus, particular attention needs to be given to the role that local markets can play for poverty alleviation, as they represent the bulk of transactions in which poor households engage (Wiersum and Ros-Tonen, 2005).

Based on experience with large scale land use policies, a major anticipated social risk of REDD is the difficulty in reaching marginalized populations. In many cases, influential stakeholders who might have formalized legal rights, such as large timber or crop industries, risk receiving a greater share of the economic incentives used for sustainable land use (Sherr and Smith, 2003). A major threat to a socially sustainable implementation of REDD is when powerful landowners grab forested land that has been made increasingly valuable through REDD and drive local communities away (Kerr *et al.*, 2006). This in turn, will lead to the highly inequitable situation whereby local communities that are *de facto* stewards of a given forest area will fail to receive REDD compensation, while large companies, who might be *de jure* landowners, will collect the payments.

Overall, a key element of the pro-poor implementation of REDD is to give rural communities a stake in the mitigation policy. However, while political decentralization can provide an opportunity for increasing local-level participation in REDD, elite capture can compromise its equitable on-the-ground implementation. Only an approach that aims towards the empowerment of rural communities as a whole can lead to an effective pro-poor governance system for REDD.

5. Achieving pro-poor REDD

5.1. *An integrated approach*

5.1.1. De-centralized ecosystem management

As we have seen, the carbon market is likely to grow significantly in the coming years. Although it is unsure whether or not a future inter-governmental REDD scheme taps into these markets as a source of funding, the current scope of the carbon market is currently insufficient. High transaction costs, unclear land tenure systems, and elite capture are all important barriers impeding access to the carbon market for many forest-dwelling communities, especially in Africa.

Considering these hurdles, it seems appropriate that the sustainable implementation of REDD should be accompanied by appropriate governance and tenure reforms at all scales. It has been argued that a global climate regime will need to support the recognition and strengthening of local rights, local citizenship and set in place more accountable rural governance structures (RRI, 2007).

As we have seen, a priority for the broad-scale implementation of pro-poor REDD is to integrate local stakeholders at the beginning of the policy design process in order to avoid marginalization. It is also essential to make sure these concerns extend beyond income-related considerations to fully account for the distribution effects of REDD. Integrating equity and development concerns into REDD will also involve a greater focus on enhancing the civil and political rights of marginalized communities (Colchester, 2007).

Taking into account the distributional shortcomings of the national-level implementation of the Costa Rican PES scheme, it appears as though country-wide efforts in developing countries at using economic incentives to reward forest protection is unlikely to reach many rural communities, especially those who are most vulnerable to environmental degradation. Hodge (2007) argues that a centralized approach to the management of ecosystem services will not work, and governments need to make sure that local capacities are strengthened in order for rural lands to be sustainably managed. In order to guarantee greater participation of local communities in the policy design process, Hodge (2007) suggests instituting local-level interactive forums where various interests are discussed and economic incentives are “*brought into line with broader social goals*”.

In *Tropical Forest Ecology*, Montagnini and Jordan (2005) examine various approaches for implementing sustainable management techniques in tropical forests. They argue that the necessary ‘top-down’ provision of capital investments for development needs to be complemented by ‘bottom-up’ cultural acceptance of policy implementation. Thus, the authors make the case for localized integrated natural resource management (INRM).

INRM is related to the ecosystem approach, which considers natural resource management as an adaptive and integrated activity fitting into a broader landscape-level strategy. Among others, this approach has the distinct advantage of making the success of a given environmental scheme contingent on local level participation (Smith and Scherr, 2003). Within an ecosystem approach, local populations are considered to be the most competent land stewards. Box 7 offers some arguments in favor of such ‘community-based’ ecosystem management systems.

Box 7: Some advantages of community-based ecosystem management: (CIEL, 2002)

- High level of knowledge on local resources and on the consequences of human action
- Social networks that facilitate the achievement of common goals (i.e. through social suasion)
- Stronger legitimacy of local norms and rules
- Lower implementation costs
- Promoting democracy, social justice, and humanitarianism

While it holds promise for a pro-poor implementation of REDD, the ecosystem approach is only effective where there is sufficient knowledge and management capacity. It has been argued that the diffuse nature of external costs and benefits of land uses, the complexity of ecosystems, the need to coordinate land management at the landscape level, and the multiplicity of stakeholders involved often leads to sub-optimal decision-making in ecosystem management. Some suggest to co-ordinate efforts through local-level ‘adaptive co-management’ processes that integrate a range of stakeholders (Hodge, 2007). The defining features of such a management scheme have been offered by Folke *et al.* (2005):

- Building knowledge and understanding of ecosystem dynamics
- Feeding this knowledge into adaptive management practices
- Supporting flexible institutions and multi-level governance systems
- Dealing with external perturbations, uncertainty and surprise

While experiences with community-based forest management vary, depending on the socio-economic context within which it is implemented, in many examples it has jointly delivered socio-economic and environmental benefits (Gilmore, 2007). However, the success of so-called ‘local-level adaptive management schemes’ is linked to the social landscape within which it is set. Thus, high levels of social capital and the presence of strong ‘social entrepreneurs’ have been identified as conditions for the effective management of socio-ecological systems (Hodge, 2007).

A significant hurdle to the use of economic incentives to support ecosystem management at local levels is the implementation costs (transaction, administrative, enforcement). Furthermore, the condition of up-front financing can exclude certain stakeholders from participating in REDD. Thus, it has been suggested that institutional reforms aiming to reduce these costs should focus on solidifying partnerships between government agencies, farmers and small-scale landowners, and carbon credit buyers and retailers (Peskett *et al.*, 2006).

5.1.2. Strong and coherent social guidelines

A key challenge to the implementation of REDD is to ensure that efficiency motivations are balanced by equity concerns. As we have seen, the sustainable implementation of REDD is hard to conceive without an effective and equitable participation at the local level. An eventual REDD governance regime will thus need to include measures to ensure that the carbon benefits delivered are contingent upon equitable local level participation.

While host-country sovereignty is important, a more critical consideration is to empower rural communities involved in REDD. At the project level, consistent social impact assessments would be a step in the right direction. At the national level, policies need to focus on strengthening rights over forests and forest resources for local communities, enhancing the economic viability of

small scale enterprises, and removing subsidies that favor unsustainable land uses (e.g. grazing, palm oil plantation, etc.).

It has been argued that results established from local action are, more often than not, better than the alternative. (Fischer *et al.*, 2005). Community-based projects, such as agroforestry, SMFEs, multiple-use forest management, ecoagriculture, all have the potential for livelihood benefits while limiting risks. International efforts at implementing REDD need to focus specifically on building capacity to engage in such projects. The challenge of making REDD pro-poor is above all about facilitating the social and political landscape that will enable rural populations to take their own fate in their hands.

A more concise categorization of the main approaches that would be useful to bear in mind for developing pro-poor REDD are offered by Sunderlin *et al.* (2007):

- Transfer of tenure rights to indigenous and other rural communities
- Assistance in market access and development of forest resources for the poor
- Implementation of pro-poor community forestry models
- Establishment of pro-poor payments for ecosystem services

The difference in scale between REDD and contemporary carbon offset practice implies both the possibility and the need for different social guidelines, informed by relevant experience at comparable scales of intervention. An integrated approach to REDD could serve as the foundation for the development of standards that could guide the pro-poor implementation of REDD. May *et al.* (2003) offer a set of indicators and criteria for developing such standards that could be further expanded on as experience with REDD accumulates. Also, discussions carried out during the Vth IUCN World Parks Congress offer some initial building blocks for the pro-poor guidance of REDD (see Annex II).

When establishing the guidelines, it will be important to clearly distinguish between those that aim to ensure 'no harm', those that secure positive benefits, those that focus on improving access, and those that aim for nation-wide development benefits (Peskett *et al.*, 2007). Overall, they need to be harmonized across national and sub-national institutions. The standards should focus more on procedures for evaluating and delivering social benefits, and should not simply provide checklists to be used by project developers (Peskett *et al.*, 2006).

6. Conclusion – the REDD potential

6.1. *Institutional coherence at the international level*

It has yet to be determined whether or not the dual objectives of offsetting carbon emissions and positively contributing to human development can be practically achieved (Peskett *et al.*, 2007). However, as significant efforts are currently underway, notably under the auspices of the World Bank, it is not too late to strive towards a pro-poor development of REDD.

Many international environmental bodies and conventions would be affected by the inclusion of REDD into a climate change regime (see Box 7). In an effort to assess how to improve synergies in land use management, Cowie *et al.* (2007) highlight avoided deforestation and degradation as the activities that best complement the objectives of the three environmental conventions established in Rio in 1992 (the UNFCCC, the CBD and the United Nations Convention to Combat Desertification (UNCCD)) while avoiding trade-offs.

Box 7 : International organizations with a stake in the protection of forest ecosystems (Kapos *et al.*, 2007)

- The Convention on Biological Diversity (CBD),
- the United Nations Forum on Forests (UNFF),
- the United Nations Educational, Scientific, and Cultural Organization (UNESCO) (especially the World Heritage Convention),
- the United Nations Convention to Combat Desertification (UNCCD),
- the UN Commission on Sustainable Development (CSD),
- the Convention on Migratory species (CMS),
- the FAO Committee on Forests,
- the Ramsar Convention on Wetlands, and
- the International Tropical Timber Agreement (ITTA)

The capacity that a wide implementation of REDD would have for enhancing international environmental governance through greater institutional coherence offers some causes for optimism, notably in terms of reducing overall implementation costs.

6.2. *Combining mitigation and adaptation efforts*

The integration of various international environment regimes has less relevance to the social dimension of REDD than the opportunity that the projected scheme presents for combining mitigation and adaptation into a coherent climate change strategy.

Recent research on the resilience of ecosystems is providing some interesting insights into the capacity that forest protection has to generate more stable and robust environments (i.e. enhanced ecological resilience). In short, it is believed that a stronger resilience of ecosystems entails a greater capacity for climate change adaptation. Thus, it is believed that there is an opportunity for greater efficiencies by combining efforts aiming at forest management and those directed towards adaptation to climate change (Corbera, 2007).

Due to their greater resilience to external shocks, large tracts of forest have a greater capacity to maintain critical ecosystem services upon which local communities depend for their livelihoods.

By limiting the overall risk of environmental degradation, greater ecosystem resilience could thus positively influence both mitigation and adaptation. These considerations are especially relevant in a livelihoods perspective, as poor communities are likely to be the hardest hit by the erosion of forest resilience (McQueen and Vermeulen, 2006). A sound implementation of REDD should thus strive for more than mitigation benefits, as it also has the capacity to support forest resilience, thereby helping local communities adapt to the threats of climate change (unpredictable weather patterns possibly resulting in more frequent fires, floods, landslides, etc.) (McQueen and Vermeulen, 2006).

It has been found that agroforestry systems have a greater resilience than many competing land-uses, making it a good strategy for jointly addressing climate change adaptation and mitigation. Furthermore, its income generation potential for local populations makes agroforestry a particularly interesting option from a poverty reduction perspective (Kandji *et al.*, 2006).

Oxfam (2007) find that REDD could be a good opportunity for combining adaptation and mitigation efforts, but argue that there is a lack of support for adaptation. They argue that funding for adaptation should be considered as additional to overseas development aid (ODA), and that countries that are both responsible for high GHG emissions and capable of providing aid should bear the costs. The UNFCCC is in the process of developing an international Adaptation Fund. This is a subject likely to attract significant attention, along with REDD, during the upcoming UNFCCC meetings¹⁴.

Adaptation concerns could thus provide an appropriate entry point for delivering pro-poor REDD. By highlighting vulnerabilities to environmental degradation, there is a case to be made for a REDD approach that focuses on building up ecological resilience. This would apply both the establishment of a well-connected network of forest protected areas as well as to the restoration of degraded landscapes.

¹⁴ For more information, see: http://unfccc.int/cooperation_and_support/financial_mechanism/items/3659.php

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8. ANNEX I:

Mentions of poverty reduction and rural development in selected submissions to the UNFCCC SBSTA on REDD:

Selected government submissions –

- **Brazil:**
 - The position does not make any explicit mention of poverty or rural livelihoods as they relate to REDD.
 - A noteworthy element of Brazil's position is their reluctance to "envisage the creation of a new bureaucratic structure", and their preference for having a UNFCCC focal area manage the information relevant to REDD. In terms of financing, the Brazilians are not in favor of integrating the carbon market as a potential funding mechanism for REDD, and state the emissions reductions through REDD should be considered to be additional to the reductions by Annex I countries.
- **24 tropical countries (Coalition of Rainforest Nations):**
 - Related to social concerns, this position states thatat "*a system of policy approaches and positive incentives to reduce emissions from deforestation should concurrently raise living standards within rural populations and be designed to support significant social, environmental and economic objectives associated with development*". They make an explicit reference to Sustainable Forestry Management (SFM), which they consider to be "*an effective approach to reducing emissions from deforestation in developing countries*".
 - This position expresses concern with the draft Decision resulting from SBSTA-26 for consideration at COP-13, and state that "*Voluntary initiatives to support such [funding] efforts, like the World Bank's Forest Carbon Partnership Facility, should be commended and supported*". They are in favor of using the carbon market as a means of incentivizing REDD.
- **DRC, on behalf of Cameroon, CAF, Congo, DRC, Equatorial Guinea, and Gabon (COMIFAC):**
 - Related to poverty concerns, this position states that "*In the context of the countries of Central Africa, the reduction/disappearance of forest cover resulting in land-use change is due to extreme poverty and the development needs of the populations.*" They list 7 key principles for implementation, with a mention for equity, but nothing for 'pro-poor'.
 - This position argues in favor of a broad understanding of deforestation that also allows for the consideration of degradation.
- **Indonesia:**
 - Related to poverty, the Indonesia position makes a very indirect link by stating that a country "*may consider various initiatives and schemes for example: promotion of PES, Sustainable Forest Management, Protected Area management, community based forest management, combating illegal logging, forest fire management, and*

rehabilitation of degraded lands, as part of the whole efforts that contribute to reducing emissions from LULUCF sector”.

- The position sees a REDD mechanism as a complement to the CDM. The Indonesia position mentions the relevance of peatlands in their intro (10% of country area). The highlight the need to distinguish between undisturbed and disturbed forests in establishing baselines, and stress the need to understand the drivers of deforestation.
- **Japan:**
 - The Japanese does not make explicit mention of poverty or livelihood concerns, but does favor “*sustainable forest management*” as “*the basis for sustainable reduction of emissions from deforestation and forest degradation*”. They state further that “*it is also necessary to consider if multiple functions of the forest other than carbon fixing are properly maintained and demonstrated as well*”.
- **European Commission:**
 - Related to poverty concerns, the EC position makes an indirect link by stating that: “*[REDD] has the potential to provide multiple benefits towards sustainable development*”.
- **USA:**
 - As with the European and Japanese positions, the United States make a scant reference to livelihoods by stating that “*efforts to mitigate deforestation should occur in the broader context of sustainable forest management and sustainable development.*”
- **Chile:**
 - The Chilean position makes no explicit mention of poverty concerns.
 - The position is favorable to the use of market mechanisms and favors the “Nested Approach” (Lucio Pedroni – CATIE, and Charlotte Streck, Climate Focus). Related to this, they state that “*market mechanisms that allow full private sector participation are the most promising tools to create sufficient financial transfers to reduce emissions from deforestation in developing countries*”. They also express doubt that “*private investors would be willing to share the risk of potential policy failure by directly supporting government programs.*”
- **Tuvalu:**
 - The Tuvalu position clearly mentions the issue of indigenous rights and traditions which need to be protected through REDD.
- **Colombia:**
 - In this position, it is specified that international payments could be made towards local communities in addition to public or private entities.
 - The position reiterates the Chile views on getting the private sector on board.

Selected submissions from inter-governmental organizations (IGOs) –

- **Convention on Biological Diversity (CBD):** has a large section on incentive measures. They then mention their 2010 goals and targets, including goal 9: “*maintain socio-cultural diversity of indigenous and local communities*”. The relevance of this goal to REDD is cited as being “*socially sustainable protection of forests*”; and for goal 8: “*maintain capacity of*

ecosystems to deliver goods and services and support livelihoods”, the relevance to REDD is: “enhanced capacity of forest ecosystems to sequester carbon”.

- **United Nations Food and Agriculture Organization (FAO):** This submission clearly devotes substantial amount of text to poverty concerns: *“Although it is widely accepted that sustainable forest management can contribute to sustainable development, the links between deforestation and poverty reduction are not clearcut. In some cases, poverty motivates people to clear forests, in other cases poverty constrains people from clearing them. Incentives provided to reduce emissions from deforestation, therefore, may help alleviate poverty (e.g. provide additional income to people either directly or indirectly) or may exacerbate it (e.g., by reducing their access to forest lands or forest products). It is essential that countries analyze and understand the effect that incentives to reduce deforestation in order to reduce greenhouse gas emissions may have on meeting national needs and achieving their international commitments related to forests and their goods and environmental services, as well as to poverty alleviation. Strong national policy processes will be central to this.”*
- **The World Agroforestry Center (ICRAF):** mention RUPES and the need for realism, conditionality, voluntarism, and pro-poor. They also mention that Mexico and Costa Rica provide solid experience upon which to base future efforts.
- **United National Environment Programme (UNEP):** state that REDD is *“a key opportunity for attaining multiple benefits”* – biodiversity conservation, livelihoods, watershed protection and other ecosystem goods and services. The positions stresses that livelihood concerns are especially relevant to the rural poor.

Selected NGO submissions –

- **CAN international:** offer a very comprehensive overview of the main issues of REDD. Propose 5 principles: environmental effectiveness, deeper industrial emission reductions, *environmental and social integrity*, full international participation, and long term action. They address social impacts by stating that *“some social and environmental criteria will be needed to avoid negative impacts and should be optimally addressed in the rules and modalities of a deforestation scheme. In addition, national standards should be in place to ensure that negative impacts such as economic and physical displacement; increased insecurity of tenure; limited access and benefit sharing; elimination of traditional management practices; and reduction of environmental services are abated.”*
- **Conservation International (CI):** Place livelihood concerns at the forefront of their document and offer the example a cases study in Madagascar to show how projects can provide benefits for local livelihoods.
- **Friends of the Earth International:** state that *“about 350 million of the world’s rural poor and forest dwelling people indigenous peoples depend on forests for their home, livelihoods and energy supply”.*
- **Sierra Club of Canada on behalf or Canadian ENGOs:** make a clear mention of poverty concerns: *“Any future national initiative intended to reduce deforestation will need to demonstrate how it would promote sustainable development and the protection of human rights at the local operation level, including the equitable distribution of benefits to local communities.”*
- **The Nature Conservancy (TNC):** state that *“Nearly 90% of the 1.2 billion people living in extreme poverty worldwide depend on forests for their livelihoods. Unsustainable*

deforestation deprives the poor of their 'natural capital'. It degrades not only forest ecosystems but also the services they provide to people."

- **Vitae Civilis (Brazil):** State that *"the needs and concerns of traditional populations of forest areas must be taken into account."*

Other:

- **The World Conservation Union (IUCN):** offer an ecosystem approach to REDD and state at the opening of their position that *"scientific evidence clearly highlights the current and potential impacts of climate change on the environment and, consequently, on human well-being, especially poor and vulnerable communities."* They highlight the need to *"include all stakeholders, in particular forest-dependent communities"*. They also mention the need to *"mainstream gender in the work of the UNFCCC and in all mitigation and adaptation activities"*.

9. ANNEX II:

Actions recommended during the 5th IUCN World Parks Congress to enable protected areas to play a greater role in sustainable development:

(Scherl et al., 2004)

At the site level:

- Undertake social impact assessments
- Support integrated conservation and development programmes
- Increase investment in capacity building
- Encourage active participation

At the national level:

- Put legal frameworks in place to recognize traditional land tenure regimes
- Develop mechanisms to evaluate ecosystem services leading to incentives and rewards for stewardship of national public goods
- Encourage inclusive PA governance systems
- Strengthen and expand co-managed PAs
- Support community conservation areas
- Encourage the establishment of PAs that allow for sustainable resources use (Cat. IV, V, and VI)
- Compensate for reduced investment in public infrastructure and services
- Integrate PAs into larger scale land-use planning
- Give greater recognition to the role of PAs in Poverty Reduction Strategies and the Millennium Development Goals

At the international level:

- Better define the linkages between PAs and poverty
- Develop new financial mechanisms to support stewardship of international public goods